

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	<b>FOR FURTHER ACTION</b> <div style="float: right; font-size: small;">see Form PCT/ISA/220 as well as, where applicable, item 5 below.</div>	
International application No.  PCT/GB2006/002358	International filing date (day/month/year)  27/06/2006	(Earliest) Priority Date (day/month/year)  27/06/2005
Applicant  DWIGHT CAVENDISH SYSTEMS LIMITED		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed  
☐ a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☐ **Unity of invention is lacking** (see Box No III)

4. With regard to the **title**,

- ☒ the text is approved as submitted by the applicant  
☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- ☒ the text is approved as submitted by the applicant  
☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 7  
☒ as suggested by the applicant  
☐ as selected by this Authority, because the applicant failed to suggest a figure  
☐ as selected by this Authority, because this figure better characterizes the invention  
b. ☐ none of the figures is to be published with the abstract

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/GB2006/002358

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. H04N5/913

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 251 041 A (PHILIP L. YOUNG ET AL) 5 October 1993 (1993-10-05)  column 16, line 12 - line 29; figure 17	1, 2, 29, 44, 46, 52, 58, 60
A	US 6 222 978 B1 (JUN HIRAI) 24 April 2001 (2001-04-24) column 6, line 35 - column 7, line 5; figures 7A-E	10, 53, 61
A	WO 02/15557 A (MACROVISION CORPORATION) 21 February 2002 (2002-02-21) page 10, line 22 - page 12, line 16; figures 3A-3C	10, 53, 61
A	WO 96/31878 A (FRANKLIN, TREVOR) 10 October 1996 (1996-10-10) page 9, line 13 - page 10, line 8; figure 4	10, 53, 61

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

\* Special categories of cited documents:

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*&\* document member of the same patent family

Date of the actual completion of the international search

12 March 2008

Date of mailing of the international search report

20/03/2008

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Gérard, Eric

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/GB2006/002358

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:  
1-36, 44, 46, 52, 53, 58, 60, 61
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-9, 27-36, 44, 46, 52, 58, 60

Copy protection signal for triggering the color killer of a video recorder for NTSC signals.  
---

2. claims: 10-26, 53, 61

Copy protection signal specially designed for PAL video recorders.  
---

3. claims: 37-43, 45, 47-51, 54-57, 59

Copy protection signal for analog video signal to prevent recording with a digital recorder.  
---

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2006/002358

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5251041	A	05-10-1993	CA 2090120 A1	22-12-1992
			EP 0553313 A1	04-08-1993
			JP 6501367 T	10-02-1994
			WO 9300769 A1	07-01-1993
US 6222978	B1	24-04-2001	JP 3777657 B2	24-05-2006
			JP 9307928 A	28-11-1997
WO 0215557	A	21-02-2002	AU 7803201 A	25-02-2002
			EP 1310093 A2	14-05-2003
			JP 3803638 B2	02-08-2006
			JP 2004507170 T	04-03-2004
			US 2006056809 A1	16-03-2006
			US 7050698 B1	23-05-2006
WO 9631878	A	10-10-1996	AT 199607 T	15-03-2001
			BR 9604840 A	16-06-1998
			CA 2217560 A1	10-10-1996
			CN 1181156 A	06-05-1998
			DE 69611993 D1	12-04-2001
			DE 69611993 T2	28-02-2002
			EA 1026 B1	28-08-2000
			EP 0819306 A1	21-01-1998
			ES 2157431 T3	16-08-2001
			JP 11503282 T	23-03-1999
			NZ 304236 A	29-03-1999
			US 6404974 B1	11-06-2002

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

## PCT

### WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

To:

see form PCT/ISA/220

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/GB2006/002358

International filing date (day/month/year)  
27.06.2006

Priority date (day/month/year)  
27.06.2005

International Patent Classification (IPC) or both national classification and IPC  
INV. H04N5/913

Applicant  
DWIGHT CAVENDISH SYSTEMS LIMITED

**1. This opinion contains indications relating to the following items:**

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

**3. For further details, see notes to Form PCT/ISA/220.**

Name and mailing address of the ISA:



European Patent Office - Gitschiner Str. 103  
D-10958 Berlin  
Tel. +49 30 25901 - 0  
Fax: +49 30 25901 - 840

Date of completion of  
this opinion

see form  
PCT/ISA/210

Authorized Officer

Gérard, Eric

Telephone No. +49 30 25901-416



**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/GB2006/002358

---

**Box No. I Basis of the opinion**

---

1. With regard to the **language**, this opinion has been established on the basis of:
  - ☒ the international application in the language in which it was filed
  - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ on paper
    - ☐ in electronic form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in electronic form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/GB2006/002358

**Box No. IV Lack of unity of invention**

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has, within the applicable time limit:
- ☒ paid additional fees
  - ☐ paid additional fees under protest and, where applicable, the protest fee
  - ☐ paid additional fees under protest but the applicable protest fee was not paid
  - ☐ not paid additional fees
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
  - ☒ not complied with for the following reasons:  
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☐ all parts.
  - ☒ the parts relating to claims Nos. 1-36, 44, 46, 52, 53, 58, 60, 61

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	<u>3-27 28 30-36 46 53 58 60 61</u>
	No: Claims	<u>1 2 29 44 52</u>
Inventive step (IS)	Yes: Claims	<u>3-27 28 30-36 53 61</u>
	No: Claims	<u>1, 2, 29, 44, 46, 52, 58, 60</u>
Industrial applicability (IA)	Yes: Claims	<u>1-36, 44, 46, 52, 53, 58, 60, 61</u>
	No: Claims	

2. Citations and explanations

see separate sheet

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

1. Reference is made to the following documents:

D1: US-A-5251041

D2: WO-A-02/15557

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1, 2, 29, 44 and 52 is not new in the sense of Article 33(2) PCT.

**Claim 1:**

The document D1 discloses (the references in parentheses applying to this document):

An apparatus for modifying an analogue video signal of the type in which colour information is transmitted on a subcarrier signal, the signal having a colour burst comprising a signal at a reference frequency which is used to generate a reference subcarrier signal in the receiver for demodulating the colour information (see Fig.2 of D1), wherein the apparatus comprises:

an input (248, see Fig.23) for receiving a video signal;

a signal generator arranged to add a protection signal to the video signal in the vicinity of the colour burst (see Fig.17 and line 35 of col.15, the protection signals 178, 180, 182 and 184 are inserted just after the colour burst 174) are such that upon recording of the video signal by a video cassette recorder the protection signal interferes with the operation of the video cassette recorder causing errors in the colour burst recorded;

an output (284, see Fig.23) for outputting a modified video signal comprising the video signal and the protection signal, wherein when the modified video signal has been recorded by a video recorder, playback of the modified video

signal exhibits visual artefacts that are not visible before recording of the modified signal occurred,

and wherein the signal generator is configured to add the protection signal to the video signal such that the modified signal causes operation of the colour killer circuits in the video recorder (see line 19 of col.16).

Claim 2:

The protection signal disclosed in D1 comprises a protection burst 178, which can also be seen as a plurality of pulses. This protection burst is added to the video signal and, according to lines 13 and 14 of column 16, is "not coherent in terms of phase" with regard to the standard burst, and consequently out of phase with the colour subcarrier.

Claim 29:

As can be seen on Fig.17 of D1, the signal generator adds at least one pulse into the colour burst.

Claims 44 and 52:

It can be easily verified that the corresponding signal claim 44 and method claim 52 are not novel for the same reasons as claim 1.

3. This Authority considers that there are 3 subjects covered by the claims indicated as follows:
- I: Claims 1 to 9, 27-36, 44, 46, 52, 58, 60 directed to a copy protection signal in pulse shape triggering the colour killer circuit of a video recorder for NTSC signals.
  - II: Claims 10 to 26, 53, 61 directed to a copy protection signal specially designed for PAL video recorders.

- III: Claims 37-43, 45, 47-51, 54-57, 59 directed to a copy protection signal for analog television signals to prevent recording with a digital recorder.

The reasons for which the inventions are not so linked as to form a single general inventive concept, as required by Rule 13.1 PCT, are as follows:

The prior art has been identified as document D1.

- I: The subject-matter of claims 1 and 2 is known from D1.

It follows that any of the features of claims 3 to 6, 27, 34, 35 or 36 makes a contribution over the prior art and can be considered as a special technical feature within the meaning of Rule 13.2 PCT.

The problem to be solved by the present invention may therefore be regarded as providing a copy protection signal triggering the colour killer circuit of video recorders for NTSC signals.

- II: The subject-matter of claim 10 differs from this known from D1 in that:

the phase of the colour subcarrier in the video signal, when compared with the horizontal synchronisation pulse is substantially different on every line;  
and

the signal generator is configured to add the protection signal to the video signal such that the protection signal is phase-locked to the horizontal synchronisation pulse and such that the protection signal has a frequency that is substantially similar to the colour subcarrier.

The problem to be solved by the present invention may therefore be regarded as providing a copy protection signal designed specially for PAL signals taking advantage of the phase change of the colour burst (see second paragraph of page 17 of the description).

III: The subject-matter of claim 41 (or claim 37) differs from the device known from D1 in that:

a digital recording device is provided, this digital recording device comprising:

an input for receiving a video signal;

a detector for detecting the presence or absence of one or more predetermined modification signals added to the video signal in the vicinity of the colour burst, these modification signals being known from D1;

a controller arranged to control the digital recording device on the basis of the presence or absence of the one or more predetermined signals.

The problem to be solved by the present invention may therefore be regarded as additionally providing protection on digital recorders (see page 25 of the application).

The above analysis shows that the special technical features of the subjects I, II and III are not the same or similar.

A comparison of the objective problems, both seen in the light of the description and the drawings of the present application, indicates that these problems are not related, so that the STF of the subjects I, II and II have no correspondence.

In conclusion, the groups of claims are not linked by common or corresponding special technical features and define 3 different inventions not linked by a single general inventive concept.

The application, hence does not meet the requirements of unity of invention as defined in Rules 13.1 and 13.2 PCT.

#### 4. Analysis of the first subject:

4.1 The present application does not meet the criteria of Article 33(1) PCT, because the

subject-matter of claims 46, 58 and 60 does not involve an inventive step in the sense of Article 33(3) PCT.

Claims 46 and 58:

An obvious circumvention method is to remove the protection signal known from D1. It follows that the subject-matter of claims 46 and 58 does not involve an inventive step.

Claim 60:

The provision of a computer program for executing the steps of a known method lacks an inventive step.

- 4.2 Protection signals for triggering the colour killer circuit of video recorder having a shape as shown on Fig.2b or on Fig.6a, or such protection signals for alternative lines as shown on Figs.7a to 7d are not suggested by the available prior art.

5. Analysis of the second subject:

D2, which is considered to be the closest prior art document, discloses an apparatus for modifying a PAL video signal (see line 9 of page 17) wherein a protection signal PSTICB is added in the vicinity of the colour burst (see Fig.3B).

The subject-matter of claim 10 differs from the apparatus disclosed in D2 in that:

the signal generator is configured to add the protection signal to the video signal such that the protection signal is phase-locked to the horizontal synchronisation pulse and such that the protection signal has a frequency that is substantially similar to the colour subcarrier.

In D2, "the phase and frequency generated by the oscillator 132 changes thus providing an incorrect colour subcarrier signal ICSC rather than the nominal frequency which normally is NTSC or PAL colour subcarrier frequency", see the first paragraph of page 17.

The claimed protection signal has the advantage that it is the same for every line and is easy to generate.

Such a protection signal is not suggested by the available prior art. It follows that claim 10 and the corresponding method claim 53 and computer product claim 61 involve an inventive step.